

Remarks

Claims 1-65 are presently pending in the instant application. Claims 1, 3, 4-6, 8, 10, 11-17, 19-21, 24-26, 29, 34, and 43-44 have been amended. Claims 7, 18, and 22-23 have been cancelled. Support for the amendments to the claims can be found throughout the instant application, particularly on pages 5-14.

Responsive to the Requirement for Election, Applicants hereby confirm the election of Group I, claims 1-49, drawn to a desulfurization process, classified in Class 208, subclass 208R, but respectfully request reconsideration of the Requirement for Restriction for the reasons given below.

Non-elected Group II, claims 50-65, drawn to a particulate system, classified in Class 502, subclass 60, is retained in the application pending reconsideration of the Requirement for Restriction.

The Requirement for Restriction is respectfully traversed. The Requirement for Restriction is based, at least in part, on the grounds that the invention(s), as set forth in the Office Action, are distinct and have acquired a separate status in the art as shown by the cited classification and that the fields of search are not the same. All of the art classes referred to in the Office Action properly would be searched even if the claims of Group II did not exist. Claims 50-65 claim a particulate system used in the Group I claims.

The claims in Group I and Group II are so closely related to each other in this application to be allowable in a single application. All of the groups of claims clearly relate to entire processes, either in whole or in part, useful for sulfur removal.

The Examiner alleges that the product claimed in the Group II claims could be used in a materially different process than the one in Group I. Applicants respectfully suggest that one of the main aspects of the invention as a whole is the use of the Group II product in the Group I process. The Examiner is respectfully requested to see the Examples of the pending application, which provide data to show that the particulate systems of the Group II claims can be used in the processes claimed in the Group I claims.

Furthermore, the Examiner is respectfully requested to refer to MPEP 803, second paragraph, which encourages combination, such as the combination of the Group I claims with the claims of Group II in this application.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-12 and 14-49 under 35 U.S.C. 103(a) as being unpatentable over Russ et al (US 5,366,614) in view of Sughrue et al. (US 6,254,766).

Russ discloses a reforming process in which a hydrocarbon feedstock is contacted with a mixture of a reforming catalyst and a sulfur sorbent (See Russ, col. 4, lines 10-14). The catalyst contains an L-zeolite and a platinum group metal, and the sorbent comprises a manganese component (See Russ, col. 4, lines 14-16). The Russ reference also states "The hydrocarbon feedstock to the present process contains small amounts of sulfur compounds, amounting to generally less than 10 parts per million (ppm) on an elemental basis." (See Russ, col. 5, lines 3-6) Generally, the feedstock is pretreated so that most of the sulfur compounds are removed (See Russ, col. 5, lines 6-12).

Sughrue discloses the desulfurization of cracked gasoline or diesel fuel with a sorbent that contains reduced nickel (See Sughrue, col. 7, lines 1-3). Sughrue also states "The amount of sulfur in cracked-gasolines or diesel fuels can range from about 100 parts per million sulfur by weight of the gaseous cracked gasoline to about 10,000 parts per million sulfur by weight of the gaseous cracked-gasoline and from about 100 parts per million to about 50,000 parts per million for diesel fuel prior to the treatment of such fluids with the sorbent system of the present invention." (See Sughrue, col. 8, lines 35-41).

The Examiner states "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Russ by utilizing the sorbent of Sughrue in place of the sorbent disclosed by Russ because the sorbent is effective at desulfurizing the feed streams of Russ with minimal impact on the octane of the feed stream." (See Office Action, page 5, 3d paragraph).

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 123 USPQ 349 (CCPA 1959). The Russ reference utilizes a hydrocarbon feedstock with less than 10 ppm sulfur. The Sughrue reference utilizes a feed with at least 100 ppm sulfur. In Russ, most of the sulfur in the feedstock is removed prior to the main reforming process in a pretreatment step. Therefore, there is not a large quantity of sulfur left to remove. The Sughrue reference discloses the removal of larger quantities of sulfur. The main purpose of the

Russ reference is reforming, not to remove large quantities of sulfur, since this has already been done in the pretreatment step. In addition, the Russ reference states: "This catalyst system has been found to be surprisingly effective, in comparison to the prior art in which the first reforming catalyst and sulfur sorbent are utilized in sequence, in removing sulfur from the hydrocarbon feedstock while effecting reforming with emphasis on dehydrocyclization." (See Russ, col. 6, lines 27-34). Therefore, the specific catalyst system disclosed in Russ is vital to the reforming process and it would be unclear how the Sughrue catalyst would effect it. For these reasons, there is no motivation to combine Sughrue with Russ, except through the use of impermissible hindsight.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claim 13 under 35 U.S.C. 103(a) as being unpatentable over Russ et al. (US 5,366,614) in view of Sughrue et al. (US 6,254,766) and further in view of Dodwell (US 6,429,170).

Russ discloses a reforming process as stated above.

Sughrue discloses a desulfurization process as stated above.

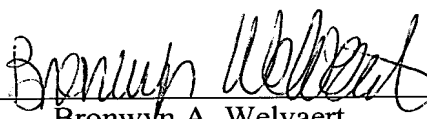
Dodwell discloses a sorbent composition comprising zinc oxide, expanded perlite, alumina, and a substantially reduced promoter component (See Dodwell, col. 3, lines 26-35). As in Sughrue, Dodwell discloses the sorbent to be used in desulfurization of a feedstock with a range of 100 ppm to 10,000 ppm sulfur (for cracked gasoline) and 100 ppm to 50,000 ppm sulfur (for diesel fuel) (See Dodwell, col. 14, lines 63-67 to col.15, lines 1-5).

As stated above, there is no motivation to combine Sughrue with Russ. Since Dodwell also discloses a sulfur removal process to remove larger quantities of sulfur, there is also no motivation to combine Dodwell with Russ, for the reasons stated above.

In view of the foregoing amendments and remarks, claims 1-6, 8-17, 19-21 and 24-65 are believed to be in condition for allowance. Therefore, allowance of these claims is respectfully requested.

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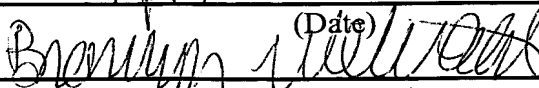
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